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A new species of *Elegia* (Lepidoptera, Pyralidae, Phycitinae) from the Balkan Peninsula

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Abstract. *Elegia occultalis* Plant, **sp. nov.** (Lepidoptera, Pyralidae, Phycitinae) is described from the Balkans and compared with related species. Adults and male and female genitalia of the new species are illustrated.

Introduction

As part of an ongoing project to inventory Lepidoptera in the Balkan countries of Europe (The Balkans Moth Project), microlepidopteran material from light traps operated by SB and AN are routinely passed to CWP for recovery and naming of Pyraloidea in particular. Material collected from 2017 to 2019 was examined by CWP between October 2019 and February 2020. This exercise revealed approximately 2000 specimens that were attributable to Phycitinae. Many specimens of *Elegia* species were found amongst these and preserved for later examination. Unfortunately, the combined effects of mould, "grease" and simple mechanical damage rendered almost all material unrecognisable without examination of features of the genitalia.

Slamka (2019) raised *Elegia atrifasciella* Ragonot, 1887 from synonymy under *fallax* Staudinger, 1881 and asserted that it was the prevalent species in the southern Balkans. This invalidates the results presented by Plant (2016), in which *atrifasciella* was treated as a synonym of *fallax*; it is also unsupportive of the more recent work by Kemal et al. (2020) in which it is asserted that *E. fallax* is the prevalent species. These data clearly required critical re-evaluation. Consequently, during February 2020, CWP dissected the genitalia of all Balkan *Elegia* material at his disposal. The wider results concerning the status of the taxa *atrifasciella* and *fallax* are to be published separately, but during the course of this study CWP was surprised to discover a number of male *Elegia* specimens from a site in Albania with a distinctive broad, spatulate gnathos, quite unlike the acute gnathos of all expected members of the genus.

Further investigation revealed additional males from the same site on the Ionian Coast, all with the unusual gnathos and also several females with identical genital structures that did not fit precisely to the three expected candidates of *E. fallax*, *E. atrifasciella* or *E. similella* (Zincken, 1818). Additionally, both sexes were found in samples from another area, quite separated from the first and further inland, in North Macedonia. There are no other European species of *Elegia* that have the distinctive spatulate gnathos. For other regions, Slamka (2019) lists *E. iozona* (Meyrick, 1937) from Asiatic Turkey and the Balkan material shares a number of similarities with that taxon, in-

cluding the broad gnathos, but a detailed comparison with the type specimen and its associated genitalia slide at Natural History Museum, London NHML, reveals a number of differences. This slide is reproduced in Slamka (2019), on page 173, top centre image, along with the culcita to its left. Further, the known distribution of *E. iozona* affects Asiatic Turkey (with no reports from west of the Bosporus) and thence eastwards across Iraq and Iran; its presence in the Southern Balkans would be rather surprising.

Kemal et al. (2020) described two new species of *Elegia* (*E. feminina* and *E. saecula*) from Asiatic Turkey, both with a broad, spatulate gnathos. However, the overall shape of the gnathos, as well as a number of other features, in both these taxa shows that they differ from the Balkan specimens. It is clear that the material from Albania and North Macedonia represents a new, previously undescribed species. Its description is given below.

Materials and methods

Genitalia were dissected broadly following the methodology of Robinson (1976). Terminology of the genitalia follows Slamka (2019). Adult moths (Figs 3, 4) were photographed using a Nikon D3300 DSLR camera fitted with a Nikon DX VR 18–55mm 1:3.5–5.6G II lens. Genitalia (Figs 1, 2) were imaged using a: Nikon D90 DSLR camera body, mounted on a Nikon Eclipse E55i Compound microscope then using Helicon Focus stacking software before processing using Photoshop Elements. The habitat photographs at Figs 5, 6 were captured using a Sony Cyber-Shot DSC-HX400V digital camera.

Description of new species

Elegia occultalis Plant, sp. nov.

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Type material. ***Holotype*** ♂ (Fig. 3). Albania, Ionian coast below Ilias, near Dhërmi, St. Theodor monastery, 140 m., 40°07'52"N, 19°39'21"E, 15.v.2017, S. Beshkov & A. Nahirnić leg., preserved in the C. W. Plant collection, which is bequeathed to the British Entomological and Natural History Society. ***Paratype*** ♀ (Fig. 4), North Macedonia, Vardar River Valley, above Demir Kapija town, 244 m, 41°22'58"N, 22°11'45"E, 13.vii.2019, Beshkov & A. Nahirnić leg., preserved in the C. W. Plant collection. Additional paratype material is 3♂♂1♀, same locality and data as holotype. One paratype male and one paratype female will be preserved in the National Museum of Natural History Sofia (NMNHS). The remaining paratype males are in the collection of C. W. Plant. Other material collected is in very poor condition and is excluded from the type series.

Diagnosis. *Elegia occultalis* is most likely to be confused with *E. atrifasciella* in the European fauna and is probably not separable in the adult stage without recourse to examination of genitalia. The male genitalia are typical of the genus, with valva and associated digitus similar to *Elegia atrifasciella*, but the apices of the labides are rounded in both *atrifasciella* and *similella*, whilst acute in *E. occultalis*. *Elegia fallax*, also with acute labides, has these spines long and usually reaching as far as the apex of the gnathos. The female genitalia exhibit a cleft lateral lamella, and may not be distinguishable from those of *E. atrifasciella*. The moth should be readily distinguished from *E. similella* because it lacks the bright white wing fascia of the latter species. If it should transpire,

Figure 1. Habitat of *Elegia occultalis* Plant, sp. nov. Albania, coast below Ilias, near the St. Theodor monastery, 140 m. Maquis with *Olea europaea* L. (Oleaceae), *Quercus macrolepis* Kotschy, *Q. coccifera* L., *Q. ilex* L. (Fagaceae), *Arbutus unedo* L., *Calluna vulgaris* (L.) Hull (Ericaceae), *Pistacia lentiscus* L., *P. terebinthus* L. (Anacardiaceae), *Cupressus* sp., (Cupressaceae), *Ficus carica* L. (Moraceae), *Cistus* sp. (Cistaceae), etc. Photography by Stoyan Beshkov, 2019.

as a result of further research, that the range of the new species overlaps geographically with that of *E. iozona*, then confusion between these two taxa is also likely to require genitalia examination for resolution. Separation from two recently described Turkish species is achievable by comparison of the shape of the gnathos, which is round in *E. occultalis*, spoon-shaped in *feminina* and ovoid, with an angular apex in *saecula*.

Description of the new species. ***Holotype male*** (Fig. 3). Forewing length of set specimen 10 mm, measured from wing tip (including cilia) to thoracic wall. Head, including frons, vertex and entire antennae grey-scaled. Antennal scape modified, flattened laterally and with scales on dorsal aspect forming a smooth extension. Basal 5 segments of antennal flagellum separately modified, with enlarged scales front and rear curving dorsally to form, and enclose a concave depression ("knot") on the dorsal surface – internally black in colour. Labial palps grey-scaled, but with occasional darker scales and segment 3 (apical segment) darker than basal segments. Thorax, including tegulae and scutellum, grey-scaled – concolourous with basal area of forewing. Forewing with venation as in other *Elegia* species. Upper side with

Figure 2. Habitat of *Elegia occultalis* Plant, sp. nov. North Macedonia: Vardar River Valley, above Demir Kapija, 244 m. Pseudomaquis with *Juniperus excelsa* M. Bieb., *Juniperus oxycedrus* (L.) (Cupressaceae), *Paliurus spina-christi* Mill. (Rhamnaceae), *Pistacia terebinthus* L. (Anacardiaceae), *Phillyrea latifolia* L., *Fraxinus ornus* L. (Oleaceae), *Quercus pubescens* Willd. (Fagaceae), *Astragalus* sp. (Leguminosae), *Astracantha* spp. (Fabaceae), *Silene* sp. (Caryophyllaceae), etc. Photography by Stoyan Beshkov, 2019.

orbicular, reniform and claviform stigmata obscure. No basal spot. Wing grey-scaled in basal area (basal 2.5 mm), with some scales minutely irrorate whitish, beyond which is a black band, equating to the ante-median fascia, extending from costa to dorsum, approximately 1 mm wide at the costa and 1.5 mm wide at dorsum. Outer edge of this black band more or less straight and more or less meeting costa at 90 degrees; inner edge less sharply defined, bulging basad at mid-point where a small, almost indiscernible area of grey scales with white apices affects the central 50% of the wing, centred on the median fold. Distal edge of the black band is defined by a 0.5 mm wide band of whitish grey scales, poorly-defined on the distal edge, but macroscopically perceived as a narrow, dirty white band beyond the black band. Remaining (distal) area of forewing upper side grey-scaled with markings largely obfuscated, except for dentate subterminal line picked out by darker, blackish scales. Terminal line defined by 4 or 5 small dark spots. Cilia long, alternating grey and darker grey. Hind wing upper-side uniformly grey except for slightly darkened terminal line, most obvious in the apical region. Cilia uniformly

Figure 3. *Elegia occultalis* Plant, sp. nov. Holotype male, Albania, 15.v.2017. Photography by Graeme J. Smith (UK).

Figure 4. *Elegia occultalis* Plant, sp. nov. Paratype female, North Macedonia, 13.vii.2019. Photography by Graeme J. Smith (UK). The slight yellowing of the forewings is a consequence of the specimen becoming "greasy"; in life, the wing colour is identical to that of the male.

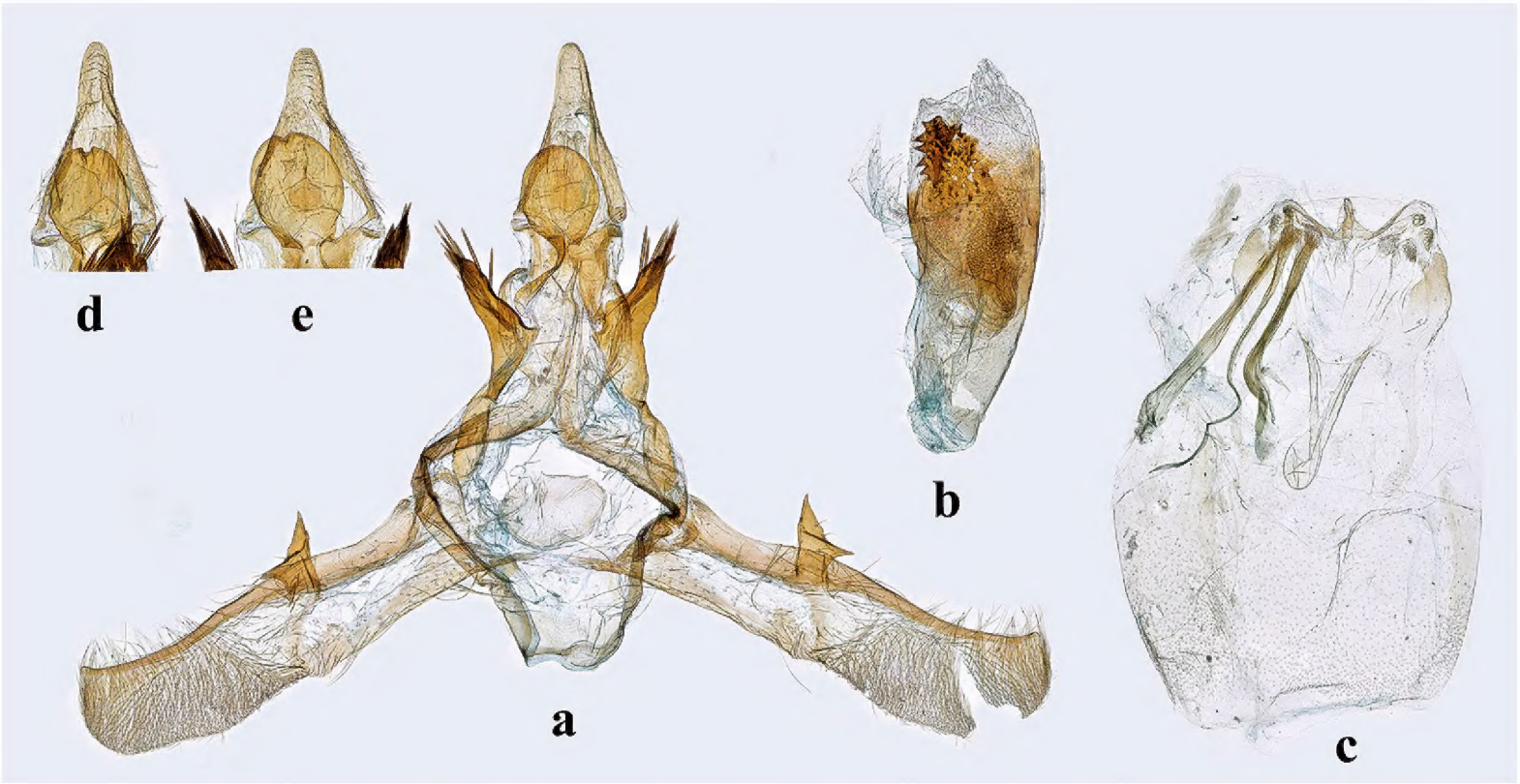

Figure 5. genitalia of holotype male *Elegia occultalis* Plant, sp. nov. **a**. overall genital capsule, **b.** phallus (not everted) and **c**. culcita. **d–e.** variation in the gnathos in two different specimens from the type series. In euparal on glass slide, CP/1997/20, images captured and photo stacked by Peter Hall (Worcester, UK).

pale grey with darker grey patches forming a grey sub-basal line. Forewing under-side dark grey, cilia concolorous except for very fine light basal line and darker grey sub-basal line. Hind wing underside whitish grey, with a narrow darker terminal line, long veins darkened, cilia with narrow pale basal line and greyish subterminal band. Abdomen grey-scaled, legs concolourous. Genitalia (Fig. 5): slide number CP/1997/20. Labides acute and with terminal spines not extending as far as the apex of the gnathos. Gnathos terminating in a dorso-ventrally flattened area, more or less round in shape.

Paratype female (Fig. 4). Forewing length of set specimen 10 mm (measured as mentioned above). Identical to male, except for antennal modifications, which are lacking, and in that the outer band of whitish scales beyond the black ante-median fascia is better defined and more distinct to the unaided human eye. Additionally, the darkish subterminal line is defined on its distal edge by a narrow zone of whitish grey scales. Genitalia (Fig. 6): slide number CP/1998/20, remarkably similar to that of *E. atrifasciella* with cleft lateral lamella antevaginalis.

Variation within the type series. There is minimal variation in the type series in the width and definition of the various bands on the forewing, presumably resulting in large part from "wear and tear". Males display minor variation in the gnathos, with some specimens bearing an indentation in the posterior tip. The range of variation observed is shown in Fig. 5d, e. However, the overall shape of the gnathos is constant.

Etymology. The name *occultalis* is derived from the Latin adjective *occulta* meaning "secretive", in feminine form and in combination with the suffix "-alis" applied, historically, to many Pyralidae species. The name is a reflection of the supposition that the new species has been hidden amongst the other *Elegia* species.

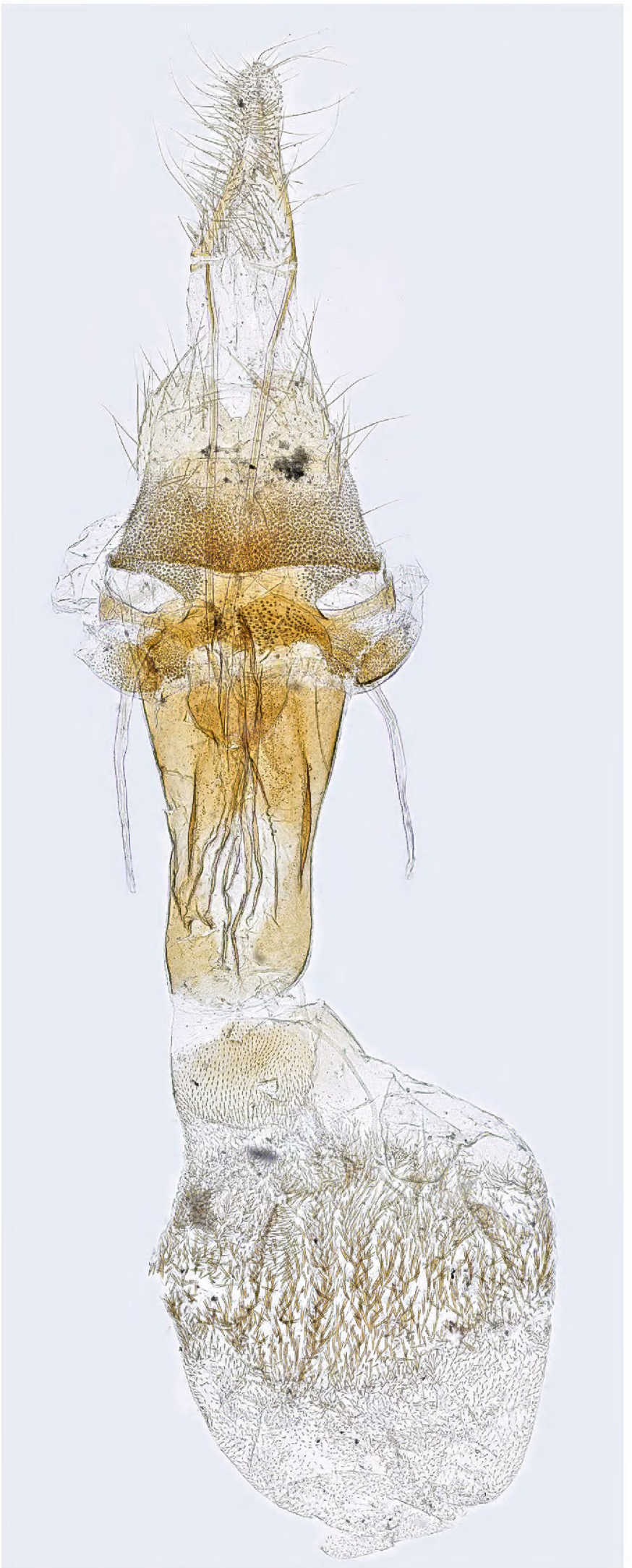

Figure 6. *Elegia occultalis* Plant, sp. nov. genitalia of paratype female. In euparal on glass slide, CP/1998/20, by CWP. Images captured and photo stacked by Peter Hall (Worcester, UK).

Discussion

This discovery, in this region of the Balkan peninsula at two physically different localities, one on the coast of Albania and the other inland in North Macedonia, is most unexpected. Known members of the genus may be restricted, in the larval stage, to a diet of deciduous *Quercus* L. (Fagaceae) leaves; it is at least of interest, therefore, that *Quercus* trees are present at both trap sites. The dates of capture in May 2017 in Albania and July 2019 in North Macedonia, indicate at least two generations per year. Other members of the genus are typically on the wing from about May to October in two or more generations (personal observations).

It seems probable that *E. occultalis* might be more widespread, at least in the southern part of the Balkans. There are depressingly few active lepidopterologists in North Macedonia and whilst those few that exist are highly competent, there is a rather low priority given by them to nocturnal Lepidoptera, especially the Phycitinae. As far as we are aware there are no active lepidopterologists resident in Albania – nor have there been for many decades.

The new species may occur, undetected, in other parts of the Balkans, at least, and should be sought in all areas where deciduous *Quercus* trees are present. Adult *Elegia* can be recognised "by eye", but whilst freshly emerged adults might be identified by more experienced entomologists, examination of the genitalia is still critical in support of correct identification of individual species.

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